Installation and Operating Manual

1/4" Day/Night Camera, Outdoor Housing, 22x Zoom

VKC-1416B-/PP

eneo®

Contents

1. Safety Instructions

- Read these safety instructions and the operation manual first before you install and commission the camera.
- Keep the manual in a safe place for later reference.
- Protect your camera from contamination with water and humidity to prevent it from permanent damage.
  Never switch the camera on when it gets wet. Have it checked at an authorized service center in this case.
- Never operate the camera outside of the specifications as this may prevent the camera functioning.
- Do not operate the cameras beyond their specified temperature, humidity or power ratings.
  Operate the camera only at a temperature range of -10°C to +50°C and at a humidity of max. 90%.
- To disconnect the power cord of the unit, pull it out by the plug. Never pull the cord itself.
- Pay attention when laying the connection cable and observe that the cable is not subject to heavy loads, kinks, or damage and no moisture can get in.
- The warranty becomes void if repairs are undertaken by unauthorized persons.
  Do not open the camera housing.
- Never point the camera towards the sun with the aperture open. This can destroy the sensor.
- Installation, maintenance and repair have to be carried out only by authorized service centers.
  Before opening the cover disconnect the unit from mains input.
- The fitter is responsible for the system of protection being followed in accordance with the technical data, e.g. by sealing of the cable outlet with silicone.
- Contact your local dealer in case of malfunction.
- Only use original parts and original accessories from Videor E. Hartig GmbH.
- Do not use strong or abrasive detergents when cleaning the dome. Use a dry cloth to clean the dome surface.
  In case the dirt is hard to remove, use a mild detergent and wipe gently.
- **During assembly, care must be taken to ensure that existing seals are correctly inserted and are not displaced as a result of assembly.**
  You must not continue to use damaged seals.

NOTE: This is a class A digital device. This digital device can cause harmful interference in a residential area; in this case the user may be required to take appropriate corrective action at his/her own expense.

2. Introduction

2.1 General Description

The 22x AutoFocus Zoom WDR Day & Night Camera provides especially for closed circuit television (CCTV) and security surveillance application.

CAUTION: Use at the 12VDC adapter must provide the power consumption of above 500mA.

- High Resolution Colour/B&W Camera
- Integral 22x AF zoom lens / 16x digital zoom
- Digital Signal Processing (DSP)
- Enhanced dynamic range (WDR/EDR)
- Digital image stabilization (DIS)
- Digital noise reduction (DNR)
- Programmable backlight compensation (BLC)
- High speed shutter control (ESC+MES)
- Adjustable low speed shutter control (DSS)
- On-screen menu control
- RS-232/RS-485 serial and voltage control interface
- All-in-one: camera / lens / housing IP66

2.2 Parts Supplied

- 1/4" Colour camera VKC-1416B/IR
- Screw set
- Manual

3. Camera Installation
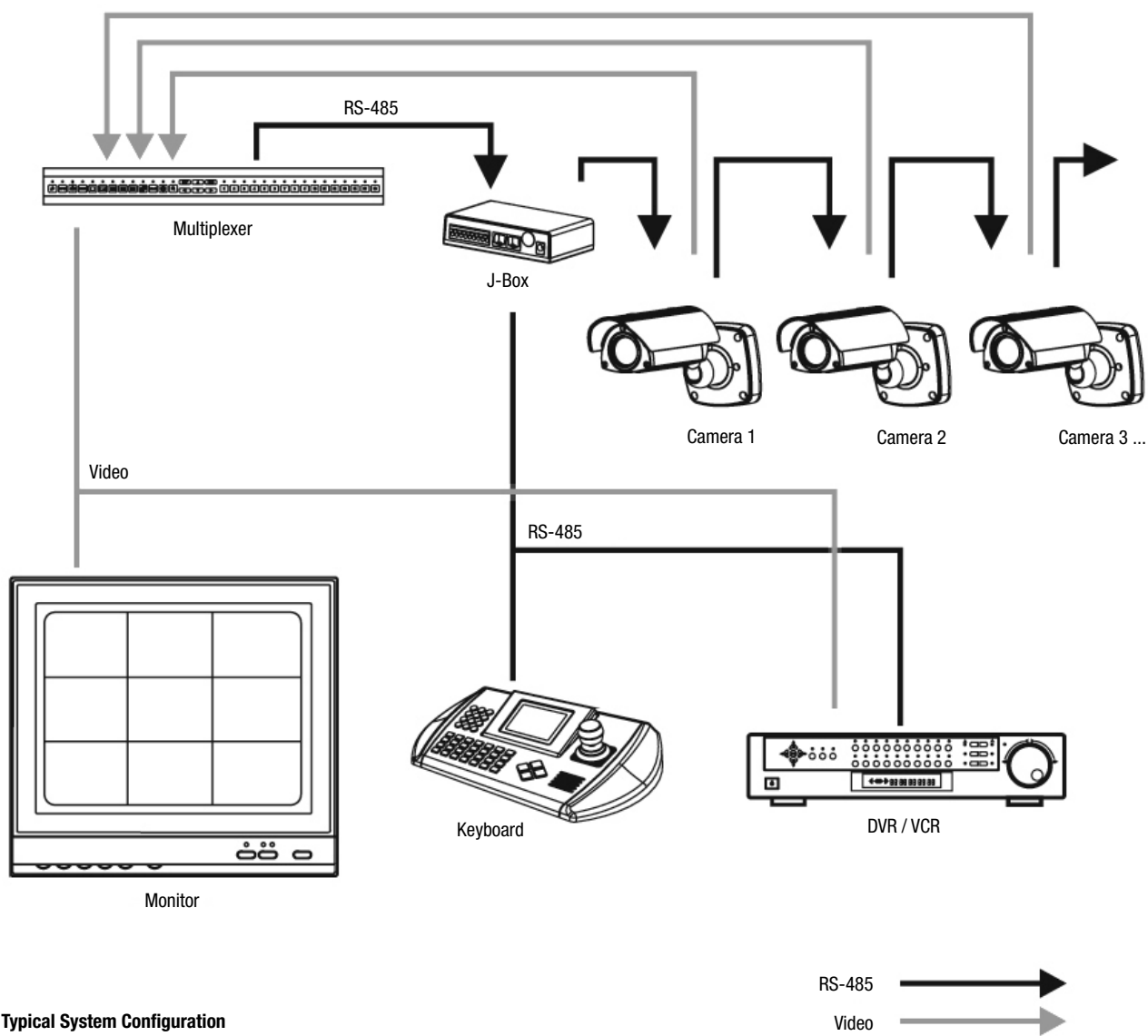
Installation of the camera must be performed by qualified service personnel in accordance with all local national electrical and mechanical codes must perform installation of the camera.

Perform the following steps to install the camera

3.1 Package Contents

• Camera VKC-1416B/PP
• Instruction Manual
• Mounting Kit

3.2 Operation Requirements

Typical System Configuration

3.3 Parts Name

Carefully remove the contents from the box, and verify that nothing was damaged in shipment.
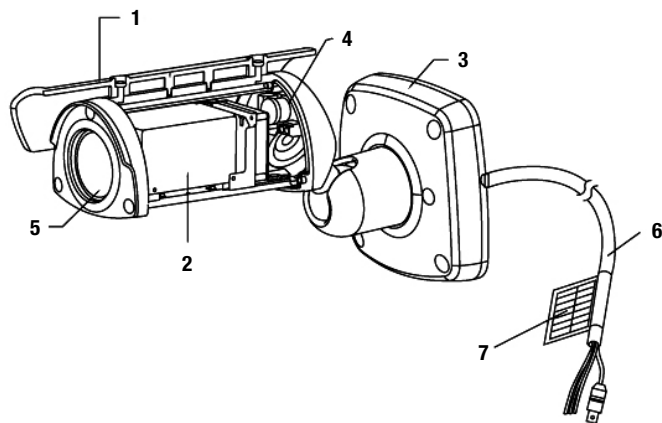
1	Sunshield
2	AF camera module
3	Mount base
4	Bimetal
5	Heater
6	Connection cable
7	Cable label

3.4 Installation

There are two ways of installing the camera.
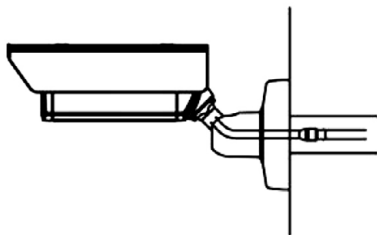
1. Cable through the wall with mount base.
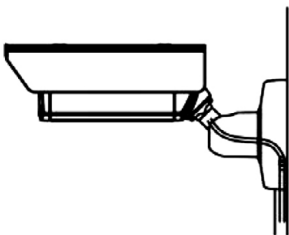
2. Using the conduit knockout punched with the mount base.

3.4.1 Installation 1 (Cable through the Wall with the Mount Base)

A. Drill the mounting location, using the template sheet (or the bottom of the mount base) as a template.
B. Insert the plastic anchors into the hole which has just drilled.
C. Connect BNC cable and communication lines.
D. Fit the screw holes of the mount base into the plastic anchors.
E. Screw up the M6 torx screws (T-20).
F. Adjust the camera suitably using the pan & tilt function, and fix the camera using the socket set screw, hexagon wrench.

Seal around the stand base tightly using the silicon rubber.

Wall

Mount base

Set screw
M5.0, L=5.0mm

Plastic anchors (4x)

Torx screws (T-20)
M6.0 x 35.0 (4x)

Socket set screw
M5.0, L=5.0mm

Hexagon wrench
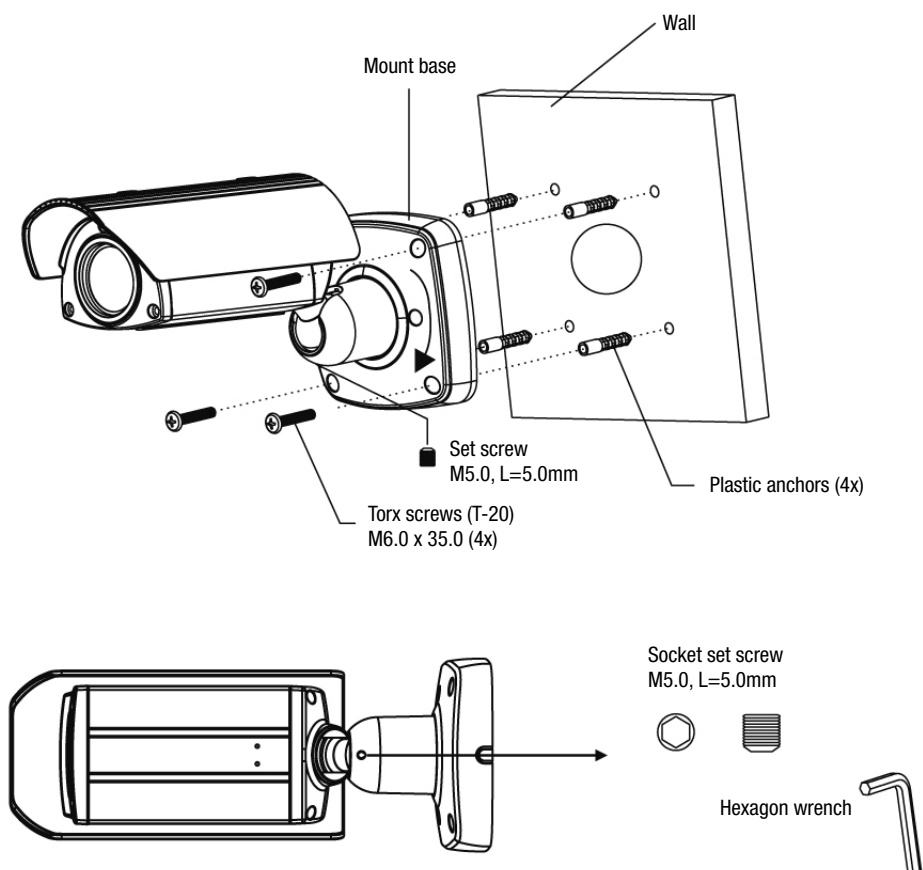
3.4.2 Instillation 2 (Using the Conduit Knockout punched with Mount Base)

A. Drill the mounting location, using the template sheet (or the bottom of the mount base) as a template
B. Insert the plastic anchors into the hole which has just drilled.
C. Connect BNC cable and communication lines.
D. Fit the screw holes of the mount base into the plastic anchors.
E. Remove the conduit knockout punched for the cable entry.
F. Screw up the M6 torx screws (T-20).
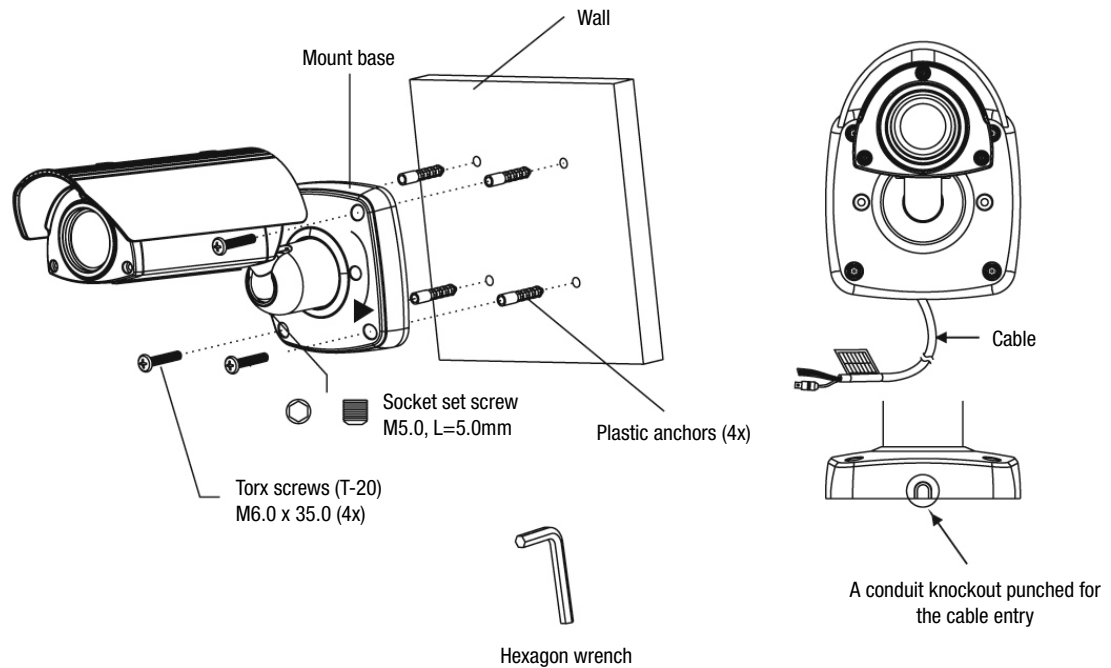G. Adjust the camera suitably using the pan & tilt function, and fix the camera using the socket set screw, hexagon wrench.

Wall

Mount base

Socket set screw
M5.0, L=5.0mm

Plastic anchors (4x)

Torx screws (T-20)
M6.0 x 35.0 (4x)

Cable

A conduit knockout punched for
the cable entry

Hexagon wrench

4. Connection

CAUTION: Do not connect the power cable until all other connections have been completed. if you complete the whole connection of cameras, then you have to cut the extra cable.

Video (BNC) — Monitor — DVR / VCR

(blue) / (green) — RS-485 connection

(black/white) / (gray) — Day & night control

(violet) / (black) — M/D control

(orange) / (black) — A/D key control
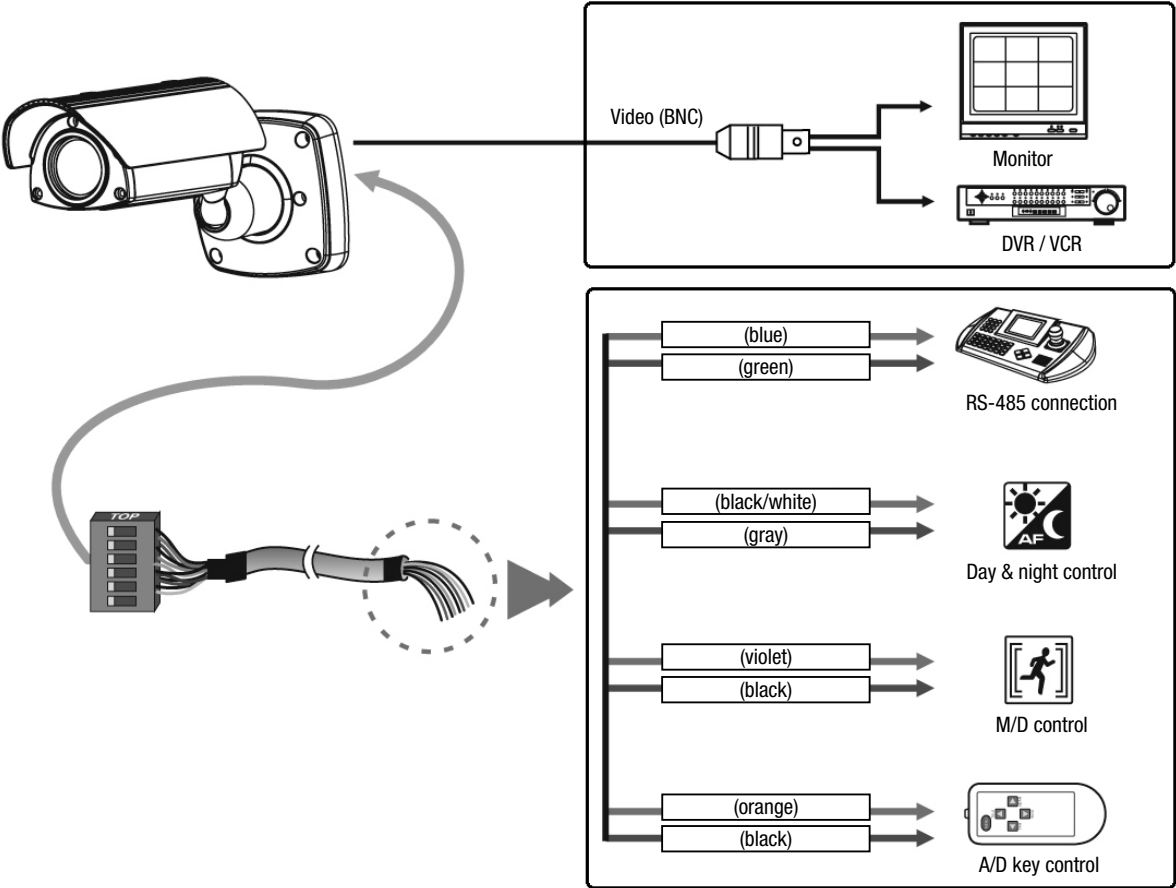
4.1 Colour Lead Wire & Colour Display Label
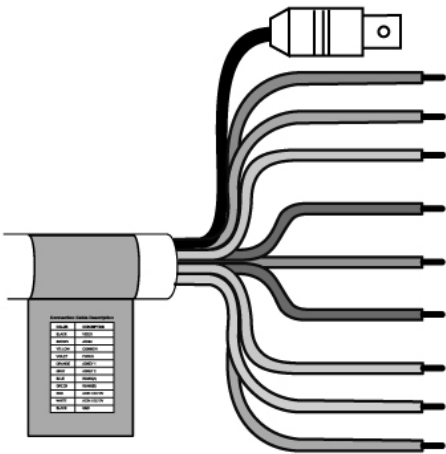
Connection cable description

Colour	Description
Red	12VDC (+) / 24VAC
White	12VDC (–) / 24VAC
Pink	RS-232 TXD
Sky-blue	RS-232 RXD
Black	GND
Gray	EXT-IN
Black/white	EXT-OUT
Blue	RS-485 (–)
Green	RS-485 (+)
Orange	A/D KEY
Violet	MD-OUT

4.2 External Day/Night Control & Zoom Preset Control

Is connect to an external sensor to receive day/night detection signals.
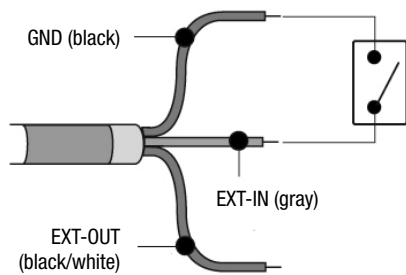
External sensor switch ON/OFF

Day/Night

EXT-IN	Day: open
	Night: closed
EXT-OUT	Colour mode: 0V output
	B/W mode: 5V output

Zoom Preset

EXT	Zoom Preset

NOTE: To validate the sensor inputs, select Function menu B/W mode the EXT.

4.3 Motion Detection & Face Detection Control
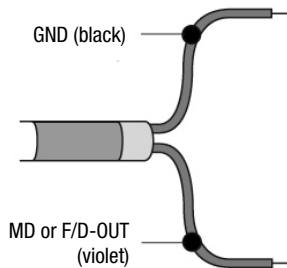
M/D or F/D	Normal mode: 0V output
	Alarm mode: 3V output
M/D+EXT or F/D+EXT	Normal mode: 0V output
	Alarm mode: 3V output

4.4 RS-485 Connection

Connecting to the RS-485: The camera can be controlled remotely by an external device or control system, such as a control keyboard, using RS-485 half-duplex. Connect market Rx+, Rx- to Tx+, Tx- of the RS-485 control system.

RS-485

4.5 Power Connection.

POWER

White
(24VAC / 12VDC)

Red
(24VAC / 12VDC)
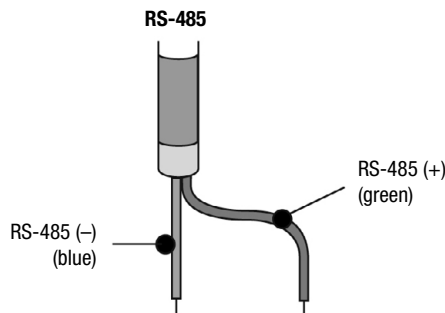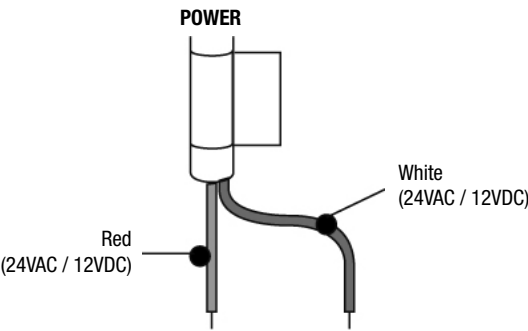
CAUTION: Use certified/Listed Class 2 power supply transformer only.

4.6 External A/D Key Control

External Controller Circuit Schematic

A/D KEY Control Circuit

Remote Controller

R22
150

Sw9
MENU

R21
5.6K

Sw10
TELE

R20
12K

Sw11
WIDE

R19
22K

Sw12
FAR

R18
33K

Sw13
NEAR

A/D KEY

GND (black)

A/D KEY (orange)

GND (black)   A/D KEY (white)

1m

∅3

MENU

TELE

FAR   NEAR

WIDE

95mm

42mm
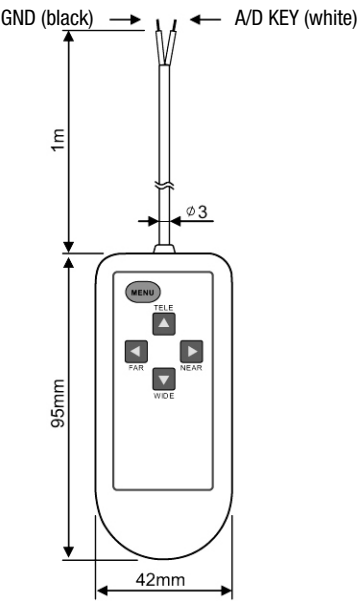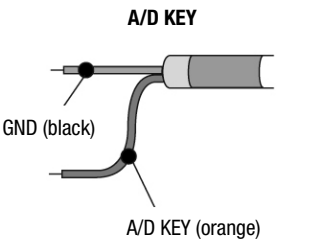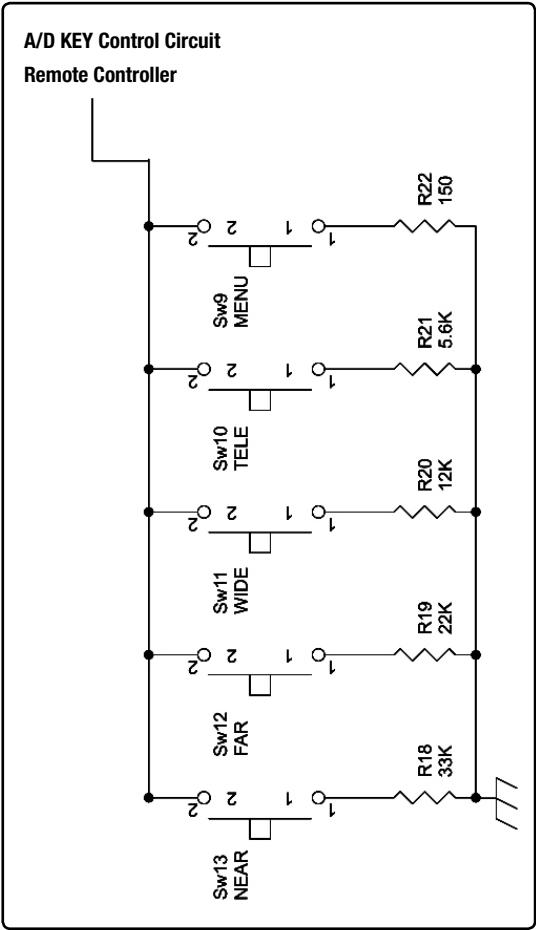
Remote Controller (# 92192)

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5. Settings in the OSD Menu

5.1 OSD Main Screen

```
1 ─── AF 22X

2 ─── MF



3 ─── 001X          CAM 001 ─── 4
```
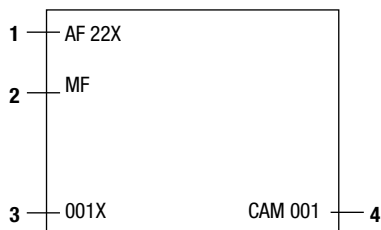
1) Camera title
2) Status of the focus mode
3) Status of the zoom position
4) Camera ID

5.2 Main Menu

```
<MAIN MENU>
FOCUS ──────────────── 1
WB ──────────────────── 2
AE ──────────────────── 3
BLC/WDR ─────────────── 4
ALARM/MD/FD ─────────── 5
PRIVACY ─────────────── 6
SPECIAL ─────────────── 7
EFFECT ──────────────── 8
CAM SET
END <EXIT>
```

5.2.1 FOCUS

```
<FOCUS MENU>
MODE
DISTANCE
D-ZOOM
D-ZOOM END
ZOOM PRESET
SET PRESET
TOUR CONFIG
END
```

MODE Select auto, manual, pushauto mode.

DISTANCE Select minimum distance in focus between camera and object. (0.1 / 1.0 / 1.5 / 2.5 / 6m)

D-ZOOM Digital Zoom on/off

D-ZOOM END Select maximum Digital Zoom magnification. (x2, x3, x4, x6, x8, x12, x16)

ZOOM PRESET Select zoom preset number. Default is x1. (1~10)

SET PRESET Set the zoom position of zoom preset.

TOUR CONFIG Select zoom tour mode. (10 zoom preset to 1 tour mode)

NOTE 1: When „ZOOM PRESET" is selected, you can adjust the preset zoom location using the „tele" and „wide" buttons.

NOTE 2: When after the zoom location has been selected press the „menu" button to store the location.

5.2.2 WB (White Balance)

```
<WB MENU>
MODE
R GAIN
B GAIN
FRAME ADJ
END
```

MODE Select white balance mode.
(AWB / WAWB / INDOOR / OUTDOOR / MANUAL / CRS)

  AWB Auto white balance mode (2500~9500K)
  WAWB Wide range auto white balance mode (1800~10500K)
  INDOOR Indoor white balance mode
  OUTDOOR Outdoor white balance mode
  MANUAL Manual mode. You can change R and B Gain manually.
  CRS Colour rolling suppress mode

R GAIN Adjust R gain value. (0~255)

B GAIN Adjust B gain value. (0~255)

FRAME ADJ Since the colour rolling path differs depending on the fluorescent lamp used, adjust the colour rolling frame for each fluorescent lamp. So press Menu key to adjust frame and after about 10 seconds, the adjust mode will be finished automatically and „ENT" turns to „END".

5.2.3 AE (Auto Exposure)

```
<AE MENU>
MODE
SHUTTER
GAIN
DSS
MAX DSS
FLICKERLESS
BRIGHTNESS
END
```

MODE	Select Exposure mode. (INDOOR / OUTDOOR / SHUT PRI / MANUAL)
INDOOR	Indoor white balance mode
OUTDOOR	Outdoor white balance mode
SHUT PRI	Shutter priority exposure mode
MANUAL	Manual exposure mode
SHUTTER	Select shutter speed. (1/60 (50)~1/100K) Can be changed while in SHUT PRI and Manual mode.
GAIN	Gain control (MIN, LOW, MID, HIGH)
DSS	Digital slow shutter on/off
MAX DSS	Select maximum slow shutter value. (x2~x128)
FLICKERLESS	Flickerless on/off
BRIGHTNESS	Adjust brightness level. (10~50)

5.2.4 BLC/WDR

```
<BLC/WDR MENU>
BLC MODE
     AREA
     LEVEL
WDR    MODE
       LEVEL
END
```

BLC	**MODE**	Select backlight compensation mode. (OFF / AUTO / MANUAL)
	AREA	Select BLC area position. (1~9)
	LEVEL	Select BLC level.(HIGH / MID / LOW)
WDR	**MODE**	Wide dynamic range on/off
	LEVEL	Adjust WDR level. (10~50)

5.2.5 ALARM/MD/FD

```
<ALARM/MD/FD MENU>
MODE
AREA SEL
              ---
DEFAULT
ADJ TOP/LEFT
ADJ BOT/RIGHT
SENSITIVITY
DWELL TIME
PRESET SEL
END
```

MODE	Select alarm and MD/FD mode. (OFF / MD / EXT / FD / MD+EXT / FD+EXT)
AREA SEL	Select MD area number. (1~4) Select MD/FD enable/disable.
DEFAULT	Set MD area as default.
ADJ TOP/LEFT	Adjust the location of the MD area with boundary top and left.
ADJ BOT/RIGHT	Adjust the location of the MD area with boundary bottom and right.
SENSITIVITY	Adjust sensitivity of MD/FD area. (MD: 1~10 / FD: 1~64)
DWELL TIME	Dwell time setup of zoom preset. (10, 20, ...,180sec)
PRESET SEL	Select zoom preset number. (OFF, 1~10) (When the MD/FD and/or Alarm is/are occurred.)

NOTE: The result of face detection can be inaccuracy.

5.2.6 PRIVACY

```
<PRIVACY MENU>
MASK SEL

               ---

DEFAULT
ADJ TOP/LEFT
ADJ BOT/RIGHT
COLOR
MOSAIC
MOSAIC TYPE
END
```

MASK SEL	Select mask area number. (1~16) Select mask enable/disable.
DEFAULT	Set mask area as default.
ADJ TOP/LEFT	Adjust the location of the mask area with boundary top and left.
ADJ BOT/RIGHT	Adjust the location of the mask area with boundary bottom and right.
COLOR	Select mask colour. (1~8)
MOSAIC	Mosaic display on/off
MOSAIC TYPE	Mosaic roughness setting. (1 ~ 4)

NOTE: The mosaic when the colour is transparent, is possible.

5.2.7 SPECIAL

```
<SPECIAL MENU>
SYNC
PHASE
D/N MODE
D/N DELAY
HI-RES
2DNR
3DNR
WHITE    DET
         LEVEL
END
```

SYNC	Select internal or line lock mode. (DC power is internal sync only)
PHASE	Adjust sync phase in line lock mode.
D/N MODE	Select D/N, Color, BW, EXT mode.
D/N DELAY	Adjust the working time of the filter when D/N operated. (5,10,20 sec)
HI-RES	Select high resolution mode. (LOW/MID/HIGH)
2DNR	Select 2D noise reduction level. (OFF/01~07)
3DNR	Select 3D noise reduction level. (OFF/01~31)
WHITE DET	Press the Menu key to execute the White Pixel Detection function and then the Iris will be closed automatically. When detection is completed, the operation automatically returns to the normal state.
LEVEL	Adjust the threshold level from 1 to 15. (Default is 4)

5.2.8 EFFECT

```
<EFFECT MENU>
SHARPNESS
NEGATIVE
D-FLIP
FREEZE
END
```

SHARPNESS	Adjust sharpness of outline. (0~15)
NEGATIVE	Select the negative or positive mode.
D-FLIP	Select rotate or flip mode. (OFF / H FLIP / V FLIP / ROTATE)
FREEZE	Select the real or still mode.

5.2.9 CAM SET

```
<CAM SET MENU>
CAM ID
BAUD RATE
PROTOCOL
DISP MODE
DISP ITEM
TITLE
ALARM TEXT
SAVE
END
```

CAM ID   Select the camera ID (1~255)

BAUD RATE   Select serial communication speed. (2400 / 4800 / 9600 / 19200bps)

PROTOCOL   Select operating protocol. (FASTRAX / PELCO-P / PELCO-D / COMMAND)

DISP MODE   Select display mode. (ON/OFF/PUSH ON)

DISP ITEM   Select display item. (1~2)

1   Camera Title and ID display

2   Camera Title and ID, Zoom lens position display

TITLE   Select camera title menu. (A~Z, 0~9)

```
A B C D E F G H I J
K L M N O P Q R S T
U V W X Y A   0 1 2 3
4 5 6 7 8 9   ( ) :
; . -  → ← ! < > , '
← → < > S E
```

ALARM TEXT If the alarm is occurred, the ALARM TEXT established at this menu will be displayed.

SAVE   Save preset parameters of CAM SET MENU.

NOTE 1: You can choose BPS menu appropriate for keyboard protocol.

NOTE 2: Although you change BAUD RATE or PROTOCOL menu, the terms of change is not applied unless you select SAVE menu.

NOTE 3: Does not do power source down while saving.

6. Troubleshooting

If problems occur, verify the installation of the Network Camera with the instructions in this manual and with other operating equipment. Isolate the problem to the specific piece of equipment in the system and refer to the equipment manual for further information.

Problem	Possible Solution
Nothing appears on the screen.	Are the power cord and line connection between the camera and monitor made properly?
The image on the screen is dim.	Is the lens dirty ? If so, clean the lens with a soft, clean cloth.
The camera is not working properly and the surface of the camera case is hot.	Is the camera connected to the proper power?
The contrast on the screen is too weak.	Adjust the contrast feature of the monitor.
	Is the camera exposed to strong light ? If so, change the camera position.

7. Maintenance

Preventive maintenance allows detection and correction of minor that faults before they become serious and cause equipment failure. Every three-month, perform the following maintenance.

1.   Inspect all connection cables for deterioration or other damage.
2.   Clean components with a clean damp cloth.
3.   Verify that all the mounting hardware is secure.

8. Specifications

Type	VKC-1416B/PP
Art. No.	74229
System	Day & night
Video standard	CCIR/PAL
Sensor size	1/4"
Imager	1/4" Sony ExView HAD CCD
Active picture elements	795(H) x 596(V) pixels
Synchronization	Internal
Signal-to-noise ratio	50dB (AGC OFF)
Gamma correction	0.45
Horizontal resolution	580 TVL (colour), 600 TVL (B&W)
Sensitivity (at 50% video signal)	0.33 Lux (colour); 0.17Lux (B&W) at F1.2 (measured)
Exposure modes	Automatic or manual mode: Iris, Shutter and AGC. Automatic mode: Iris priority, Shutter priority
Automatic electronic shutter (ESC)	1/50 ~1/100,000sec.
Manual electronic shutter (MES)	1/50 ~1/100,000sec.
Low speed shutter	yes, OFF, Automatic: 2 ~128 fps.
Automatic gain control (AGC)	30dB max., ON/OFF switchable
Digital noise reduction (DNR)	yes, 2D & 3D
Flickerless function	yes
Mirror function	H/V flip, 180° rotation
White balance	Indoor, AWB, manual, outdoor, WAWB, automatic (AWB) selectable for indoor and outdor, or manual. Wide range auto mode (WAWB, 1800~10500K)
Backlight compensation	BLC, adjustable zones, ON/OFF switchable, ON/OFF switchable with adjustable field size
Wide Dynamic Range (WDR)	yes, ON/OFF switchable
Aperture correction (APC)	Horizontal, vertical
Brightness	Adjustment range: 10 ~50
Sharpness correction	Adjustment range: 0 ~15
IR cut filter	Switchable
Video outputs	Composite (CVBS)
Lens type	Zoom
Lens	F1.6 / 3.9 ~85.8mm
Focal length	3.9 mm - 85.8 mm
PTZ support	no
Digital zoom	1x ~16x
Horizontal angle of view	50° - 2.46°
Iris control	DC
Focus control	Automatic (manual override and programmable: 0.1m/1.0m/1.5m/2.5m/6.0m)
MOD (Minimum Object Distance)	Wide angle (x1 to x4): 10cm Tele end (x5 to x22): 1.0m. Adjustable to 0.1m, 1.0mm, 1.5m, 2.5m and 6m
Illumination	no
Menu languages	English
OSD function control	Day & night, AGC, BLC, AWB, MOD, effect (freeze, pos./neg., flickerless), digital zoom, digital noise reduction (DNR), WDR, shutter mode, white pixel correction
Text display	Title, camera ID and status
Activity detection	yes
Motion detector	4 zones, ON/OFF switchable. Face detection
Privacy zones masking	16 zones masking, ON/OFF switchable
Serial interfaces	RS-232, RS-485
Serial interfaces protocols	Pelco D, Pelco P, Fastrax IIE
External adjustments	Menu, Menu: ON/OFF Focus: Near/Far Zoom: T/W
External connections	Voltage input, alarm input, alarm output, video (BNC), RS-485, AD key, external day&night switching
Mounting	Wall mount
Temperature range (operation)	-10°C ~ +50°C
Housing material	Aluminium
Housing	Indoor
Integrated wall mount	yes
Hidden cable management	yes
Sunshield	yes
Window heater	yes
Vandalism resistant	no

Protection rating	IP66
Alarm inputs	–
Alarm outputs	–
Supply voltage	12VDC, 24VAC
Power consumption	9W
Dimensions	See drawing
Weight	1.4 kg
Certificates	CE, IK10

Optional Accessories

The optional accessories currently available can be found on our Homepage: www.videor.com

9. Dimensional Drawings
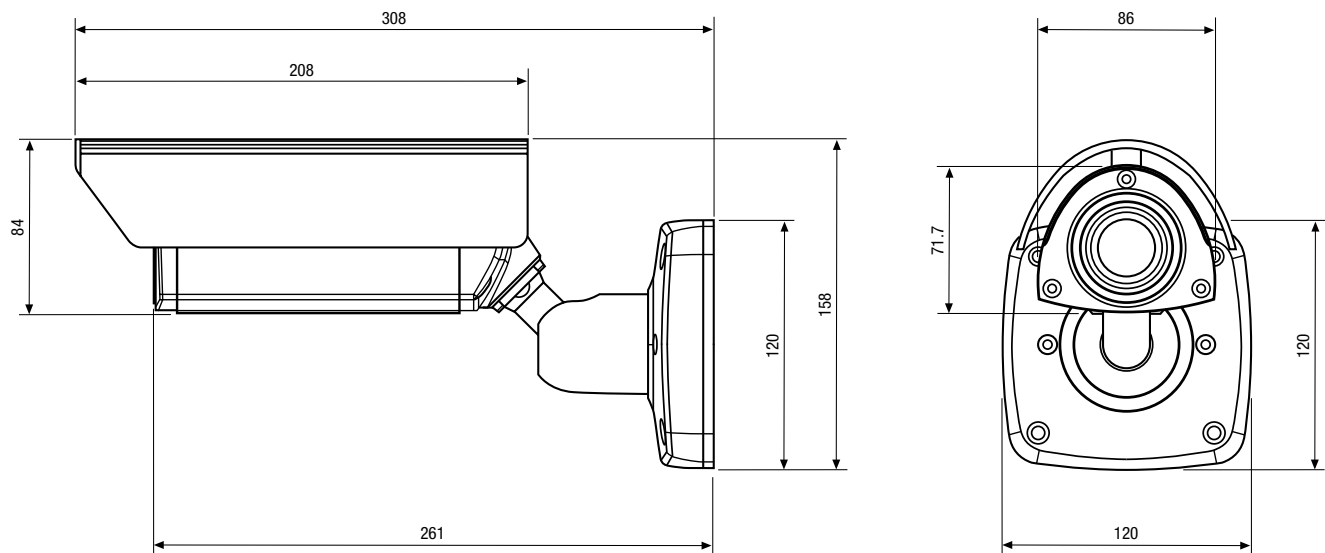
Dimensions: mm

![eneo logo]

Technical changes reserved.